WHAT IS CLAIMED IS:

1. A method of manufacturing an electron beam apparatus having an airtight container with electron-emitting devices contained therein and spacers provided in said airtight container, comprising

the coating step of providing a film on a spacer substrate to be said spacers,

characterized in that said coating step includes the applying step of applying liquid film material by emitting from an emitting portion in a predetermined direction to a part of a surface of said spacer substrate facing said emitting portion.

2. A method of manufacturing an electron beam apparatus as claimed in claim 1, comprising the moving step of changing the relative position of said emitting portion and said spacer substrate.

3. A method of manufacturing an electron beam apparatus as claimed in claim 1 or 2, wherein said applying step comprises the step of emitting one drop of said liquid film material from said emitting portion.

4. A method of manufacturing an electron beam apparatus as claimed in claim 1, wherein said applying step is the step of emitting said liquid film material

from said emitting portion by generating a bubble in said liquid film material before emission.

5. A method of manufacturing an electron beam apparatus as claimed in claim 1, wherein said applying step is the step of emitting said liquid film material from said emitting portion by a piezoelectric device.

6. A method of manufacturing an electron beam apparatus as claimed in claim 1 or 2, wherein said applying step comprises the step of spraying said liquid film material.

7. A method of manufacturing an electron beam apparatus as claimed in claim 6, wherein the direction of the trajectory of said sprayed liquid film material is restricted to emit said liquid film material in said predetermined direction.

8. A method of manufacturing an electron beam apparatus as claimed in claim 1, further comprising the film forming step of forming said film from said applied film material.

9. A method of manufacturing an electron beam apparatus as claimed in claim 1, wherein said liquid film material contains at least a metal element.

10. A method of manufacturing an electron beam apparatus as claimed in claim 1, wherein said film is an electrode.

11. A method of manufacturing an electron beam apparatus as claimed in claim 1, wherein said applying step is carried out using a plurality of said emitting portions.

12. A method of manufacturing an electron beam apparatus having an airtight container with electron-emitting devices contained therein and spacers provided in said airtight container, comprising

the coating step of providing a film on a spacer substrate to be said spacers,

characterized in that said coating step includes the applying step of applying liquid film material by emitting said liquid film material one drop by one drop from an emitting portion to said spacer substrate.

13. A method of manufacturing an electron beam apparatus as claimed in claim 12, wherein said applying step is carried out using a plurality of said emitting portions for emitting said liquid film material one drop by one drop.

14. A method of manufacturing an electron beam

apparatus as claimed in claim 1 or 12, wherein said liquid film material is applied simultaneously to a bottom surface and to a side surface of said spacer substrate.

15. A method of manufacturing an electron beam apparatus as claimed in claim 1 or 12, wherein said spacer substrate is pretreated in advance such that there is no substantially acute angle in section between a side surface and a bottom surface of said spacer substrate.

16. A method of manufacturing an electron beam apparatus as claimed in claim 15, wherein said pretreatment of said spacer substrate is rounding or tapering the portion between said side surface and said bottom surface.

17. A method of manufacturing an electron beam apparatus as claimed in claim 15, wherein said pretreatment of said spacer substrate is carried out such that the following relationship is satisfied:

$$(t^2 + 4h^2) < s^2 < (t+2h)^2$$

wherein t is the maximum value of the thickness of said spacer substrate where said film is formed, h is the height of said film, and s is the inner peripheral length of a section of said film.

18. A method of manufacturing an electron beam apparatus as claimed in claim 16, wherein said rounding of said spacer substrate is carried out such that the radius r of curvature is 1% or more of the maximum value t of the thickness of said spacer substrate where a low resistance film is formed.

19. A method of manufacturing an electron beam apparatus as claimed in claim 16, wherein said tapering of said spacer substrate is carried out by grinding.

20. A method of manufacturing an electron beam apparatus as claimed in claim 1 or 12, wherein said spacer substrate is processed using hot-draw, said hot-draw is carried out with the relationship $S_2 > S_1$ being satisfied where S_1 is the cross section of the desired spacer substrate and S_2 is the cross section of a spacer base material, with both ends of said spacer base material being fixed, the cross section of said spacer base material being similar in shape to that of said spacer substrate, a part of said spacer base material in the longitudinal direction being heated to a temperature at or above the softening point while one end portion is fed in the direction of the heated portion at a velocity of V_1 and the other end portion is drawn in the same direction as that of V_1 at a velocity of V_2, and the relationship $S_1 / S_2 = V_1 / V_2$ being

satisfied, and

said spacer base material is cooled after said hot-draw and said drawn spacer base material is cut to have the desired length.

21. A method of manufacturing an electron beam apparatus as claimed in claim 1 or 12, wherein said spacer substrate is formed of glass or ceramic.

22. A method of manufacturing an electron beam apparatus as claimed in claim 1 or 12, wherein a high resistance film is further formed on said spacers having said film formed thereon.

23. A method of manufacturing an electron beam apparatus as claimed in claim 22, wherein said high resistance film has the surface resistance value of $10^5[\Omega/\square]$ to $10^{12}[\Omega/\square]$.

24. A method of manufacturing an electron beam apparatus as claimed in claim 23, wherein the surface resistance value of said film is 1/10 or less of that of said high resistance film and is $10^7[\Omega/\square]$ or less.

25. A method of manufacturing an electron beam apparatus having an airtight container with electron-emitting devices contained therein and minute members

provided in said airtight container, comprising

the coating step of providing a film on a minute substrate to be said minute members,

characterized in that said coating step includes the applying step of applying liquid film material by emitting from an emitting portion in a predetermined direction to a part of a surface of said minute substrate facing said emitting portion.

26. A method of manufacturing an electron beam apparatus having an airtight container with electron-emitting devices contained therein and minute members provided in said airtight container, comprising

the coating step of providing a film on a minute substrate to be said minute members,

characterized in that said coating step includes the applying step of applying liquid film material by emitting said liquid film material one drop by one drop from an emitting portion to said minute substrate.

27. A method of manufacturing spacers for use in an electron beam apparatus having an airtight container with electron-emitting devices contained therein and said spacers provided in said airtight container, comprising

the coating step of providing a film on a spacer substrate to be said spacers,

characterized in that said coating step includes the applying step of applying liquid film material by emitting from an emitting portion in a predetermined direction to a part of a surface of said spacer substrate facing said emitting portion.

28. A method of manufacturing spacers as claimed in claim 27, comprising the moving step of changing the relative position of said emitting portion and said spacer substrate.

29. A method of manufacturing spacers as claimed in claim 27 or 28, wherein said applying step comprises the step of emitting one drop of said liquid film material from said emitting portion.

30. A method of manufacturing spacers as claimed in claim 27, wherein said applying step is the step of emitting said liquid film material from said emitting portion by generating a bubble in said liquid film material before emission.

31. A method of manufacturing spacers as claimed in claim 27, wherein said applying step is the step of emitting said liquid film material from said emitting portion by a piezoelectric device.

32. A method of manufacturing spacers as claimed in claim 27, wherein said applying step comprises the step of spraying said liquid film material.

33. A method of manufacturing spacers as claimed in claim 32, wherein the direction of the trajectory of said sprayed liquid film material is restricted to emit said liquid film material in said predetermined direction.

34. A method of manufacturing spacers as claimed in claim 27, further comprising the film forming step of forming said film from said applied film material.

35. A method of manufacturing spacers as claimed in claim 27, wherein said liquid film material contains at least a metal element.

36. A method of manufacturing spacers as claimed in claim 27, wherein said film is an electrode.

37. A method of manufacturing spacers as claimed in claim 27, wherein said applying step is carried out using a plurality of said emitting portions.

38. A method of manufacturing spacers for use in an electron beam apparatus having an airtight container

with electron-emitting devices contained therein and said spacers provided in said airtight container, comprising

the coating step of providing a film on a spacer substrate to be said spacers,

characterized in that said coating step includes the applying step of applying liquid film material by emitting said liquid film material one drop by one drop from an emitting portion to said spacer substrate.

39. A method of manufacturing spacers as claimed in claim 38, wherein said applying step is carried out using a plurality of said emitting portions for emitting said liquid film material one drop by one drop.

40. A method of manufacturing spacers as claimed in claim 27 or 38, wherein said liquid film material is applied simultaneously to a bottom surface and to a side surface of said spacer substrate.

41. A method of manufacturing spacers as claimed in claim 27 or 38, wherein said spacer substrate is pretreated in advance such that there is no substantially acute angle in section between a side surface and a bottom surface of said spacer substrate.

42. A method of manufacturing spacers as claimed in claim 41, wherein said pretreatment of said spacer substrate is rounding or tapering the portion between said side surface and said bottom surface.

43. A method of manufacturing spacers as claimed in claim 41, wherein said pretreatment of said spacer substrate is carried out such that the following relationship is satisfied:

$$(t^2 + 4h^2) < s^2 < (t+2h)^2$$

wherein t is the maximum value of the thickness of said spacer substrate where said film is formed, h is the height of said film, and s is the inner peripheral length of a section of said film.

44. A method of manufacturing spacers as claimed in claim 42, wherein said rounding of said spacer substrate is carried out such that the radius r of curvature is 1% or more of the maximum value t of the thickness of said spacer substrate where a low resistance film is formed.

45. A method of manufacturing spacers as claimed in claim 42, wherein said tapering of said spacer substrate is carried out by grinding.

46. A method of manufacturing spacers as claimed

in claim 27 or 38, wherein said spacer substrate is processed using hot-draw, said hot-draw is carried out with the relationship $S_2 > S_1$ being satisfied wherein S_1 is the cross section of the desired spacer substrate and S_2 is the cross section of a spacer base material, with both ends of said spacer base material being fixed, the cross section of said spacer base material being similar in shape to that of said spacer substrate, a part of said spacer base material in the longitudinal direction being heated to a temperature at or above the softening point while one end portion is fed in the direction of the heated portion at a velocity of V_1 and the other end portion is drawn in the same direction as that of V_1 at a velocity of V_2, and the relationship $S_1 / S_2 = V_1 / V_2$ being satisfied, and

said spacer base material is cooled after said hot-draw and said drawn spacer base material is cut to have the desired length.

47. A method of manufacturing spacers as claimed in claim 27 or 38, wherein said spacer substrate is formed of glass or ceramic.

48. A method of manufacturing spacers as claimed in claim 27 or 38, wherein a high resistance film is further formed on said spacer having said film formed thereon.

49. A method of manufacturing spacers as claimed in claim 48, wherein said high resistance film has the surface resistance value of $10^5[\Omega/\square]$ to $10^{12}[\Omega/\square]$.

50. A method of manufacturing spacers as claimed in claim 49, wherein the surface resistance value of said film is 1/10 or less of that of said high resistance film and is $10^7[\Omega/\square]$ or less.

51. An electron beam apparatus characterized in that said electron beam apparatus is obtained by a manufacturing method as claimed in claim 1, 12, 25, or 26.

52. An electron beam apparatus as claimed in claim 51, wherein said electron-emitting devices are cold cathode devices.

53. An electron beam apparatus as claimed in claim 51, wherein said electron-emitting devices are electron-emitting devices having a conductive film comprising an electron-emitting region between electrodes.

54. An electron beam apparatus as claimed in claim 51, wherein said electron-emitting devices are surface conduction electron-emitting devices.

55. An electron beam apparatus as claimed in claim 51, wherein said airtight container comprises a face plate disposed so as to face said electron-emitting devices, said face plate comprising an image forming member for forming an image by being irradiated by electrons emitted from said electron-emitting devices according to inputted signals.

56. An electron beam apparatus as claimed in claim 55, wherein said image forming member is formed of phosphor.